



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,634	11/14/2003	David Randall Blea	TUC920030093US1	2435
45216	7590	05/25/2010		
Kunzler Needham Massey & Thorpe 8 EAST BROADWAY SUITE 600 SALT LAKE CITY, UT 84111			EXAMINER CAMPOS, YAIMA	
			ART UNIT 2185	PAPER NUMBER
			NOTIFICATION DATE 05/25/2010	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket@kunzlerip.com

Office Action Summary	Application No. 10/713,634	Applicant(s) BLEA ET AL.	
	Examiner YAIMA CAMPOS	Art Unit 2185	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32, 38 and 39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32, 38-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. As per the instant Application having Application number 10/713,634, the examiner acknowledges the applicant's submission of the amendment dated 3/1/2010. At this point, claims 1, 9, 25 and 38 and have been amended, and claims 33-37 and 40-45 have been canceled. Claims 1-32 and 38-39 are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/1/2010 has been entered.

REJECTIONS BASED ON PRIOR ART

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4 – 10, 12 – 18, 20 – 26, & 28 – 32 are rejected under 35 U.S.C. 102(b) as being anticipated by *Yanaka* (US 6,467,034).

In regard to claim 1, Yanaka teaches:

Art Unit: 2185

an identification module configured to identify one or more available copy functions in response to a data copy request to copy data (the write activity detector monitors the write requests and identifies if the present mode (i.e. synchronous, semi-synchronous or adaptive – the three predefined copy policies) is appropriate for the data transfer – col. 7, lines 20-32) **to a secondary storage device** (the system copies between elements 111 and 211 in figure 1), **the identification module identifying each identified copy function by determining that the copy function is compatible with the secondary storage device** (this is a disk mirroring method; Abstract) **and available to an application to copy data of the data copy request to the secondary storage device** (the ability to copy the functions show they are available to an application as its the application that requests these functions (col. 7, lines 43-67; col. 8, lines 1-55) wherein Applicant should note that the three copy functions disclosed by Yanaka must be compatible with the secondary storage (disk system B201) and be available in order to copy data from primary disk system A101 to disk system B201), **the secondary storage device comprising one of one or more secondary storage devices available to the application for storing the data** (the system copies between elements 111 and 211 in figure 1);

a comparison module configured to compare one or more copy function attributes of each available copy function to corresponding copy policy attributes of a predefined copy policy (the write activity detector compares attributes or metrics of the present mode with the predefined modes to determine if the amount of activity required at that time can be efficiently serviced – col. 7, lines 25-36 and col. 5, line 61 through col. 6, line 11), **wherein the copy policy comprises a set of copy policy attributes that correspond to the copy function attributes of each copy function, wherein the copy function attributes comprise predefined**

Art Unit: 2185

values that indicate functionality characteristics of the corresponding copy function (the attributes of the performance metrics of Yanaka are used to determine the predefined mode);

a selection module configured to automatically select a copy function that satisfies the predefined copy policy based on the comparison of the copy function attributes to the corresponding attribute objectives of the copy policy (the write activity detector issues a command to change the remote copy mode to another predefined mode that is most appropriate for the transfer – col. 7, lines 25-36 and col. 5, line 61 through col. 6, line 11); **and**

a relationship module configured to establish a copy relationship between the selected copy function and the data copy request, the copy relationship configured to use the selected copy function to copy the data to a secondary storage device (once the write activity detector issues the command to change the copy mode, the new mode is set for the transfer – again, col. 7, lines 25-36 and col. 5, line 61 through col. 6, line 11), **wherein the identification module, the comparison module, the selection module, and the relationship module comprise at least one of hardware and executable code** (figure 1), **the executable code executable on a processor and stored on one or more computer readable media.**

In regard to claim 9, Yanaka teaches:

a policy generation module configured to establish a copy policy compatible with an application (the host issues commands which are subsequently analyzed by the write activity detector to determine if the generated copy policy is best suited for the application – col. 7, lines 20-42), **the copy policy comprising one or more copy policy attributes**, (the write activity detector bases its decision to change the mode based on attribute data from the host (i.e. number

Art Unit: 2185

of commands, quantify of information, response time, access range, etc.) – col. 9, lines 8-36);

and

a copy request module (Fig. 1, the activity detector (element 125) works in conjunction with the host (element 100) and the remaining elements of the controller (element 101) to perform the copy request) **configured to:**

recognize a data copy request that included the copy policy (the write activity detector recognizes the copy request and the mode of transfer (i.e. synchronous, semi-synchronous or adaptive) – col. 7, lines 20-50) ;

identify one or more available copy functions in response to a data copy request to copy data to a secondary storage device, by determining that (the write activity detector monitors the write requests and identifies if the present mode (i.e. synchronous, semi-synchronous or adaptive – the three predefined copy policies) is appropriate for the data transfer – col. 7, lines 20-32), **each copy function is compatible with one or more secondary storage devices** (this is a disk mirroring method; Abstract; (the ability to copy the functions show they are available to an application as its the application that requests these functions (col. 7, lines 43-67; col. 8, lines 1-55) wherein Applicant should note that the three copy functions disclosed by Yanaka must be compatible with the secondary storage (disk system B201) and be available in order to copy data from primary disk system A101 to disk system B201) **and available to the application to copy data to a secondary storage device of the one or more secondary storage devices** (the ability to copy the functions show they are available to an application as its the application that requests these functions), **the one or more secondary storage devices available**

Art Unit: 2185

to the application for storing the data (the system copies between elements 111 and 211 in figure 1);

compare copy function attributes of each copy function for a storage device to copy policy attributes of the copy policy, (the write activity detector compares attributes or metrics of the present mode with the predefined modes to determine if the amount of activity required at that time can be efficiently serviced – col. 7, lines 25-36 and col. 5, line 61 through col. 6, line 11), **wherein the copy policy comprises a set of copy policy attributes that correspond to the copy function attributes of each copy function, wherein the copy function attributes comprise predefined values that indicate functionality characteristics of the corresponding copy function** (the attributes of the performance metrics of Yanaka are used to determine the predefined mode);

automatically select a copy function that satisfies the copy policy based on the comparison of the copy function attributes to the corresponding attribute objectives of the copy policy (the write activity detector issues a command to change the remote copy mode to another predefined mode that is most appropriate for the transfer – col. 7, lines 25-36 and col. 5, line 61 through col. 6, line 11); **and**

establish a copy relationship between the selected copy function and the data copy request, the copy relationship configured to use the selected copy function to copy the data to a secondary storage device (once the write activity detector issues the command to change the copy mode, the new mode is set for the transfer – again, col. 7, lines 25-36 and col. 5, line 61 through col. 6, line 11), **wherein the identification module, the comparison module, the selection module, and the relationship module comprise at least one of hardware and**

Art Unit: 2185

executable code (figure 1), the executable code executable on a processor and stored on one or more computer readable media.

In regard to claim 17, Yanaka teaches:

a file server (files are copied between hosts 100 and 200 in figure 1) **comprising**
an application module configured to send a data copy request from an application
(Fig. 1, host A (element 100) - col. 5, lines 61-66);
an identification module configured to identify one or more available copy functions
in response to a data copy request to copy data (the write activity detector monitors the write requests and identifies if the present mode (i.e. synchronous, semi-synchronous or adaptive – the three predefined copy policies is appropriate for the data transfer – col. 7, lines 20-32; col. 7, lines 43-67; col. 8, lines 1-55; col. 9, lines 37-45) **to a secondary storage device** (the system copies between elements 111 and 211 in figure 1), **the identification module identifying each copy function by determining that the copy function is compatible with the secondary storage device** (this is a disk mirroring method; Abstract; (the ability to copy the functions show they are available to an application as its the application that requests these functions (col. 7, lines 43-67; col. 8, lines 1-55) wherein Applicant should note that the three copy functions disclosed by Yanaka must be compatible with the secondary storage (disk system B201) and be available in order to copy data from primary disk system A101 to disk system B201) **and available to an application to copy data of the data copy request to the secondary storage device**, (the ability to copy the functions show they are available to an application as its the application that requests these functions) **the secondary storage device comprising one of one**

Art Unit: 2185

or more secondary storage devices available to the application for storing the data (the system copies between elements 111 and 211 in figure 1);

a comparison module configured to compare one or more copy function attributes of each available copy function to corresponding copy policy attributes of a predefined copy policy (the write activity detector compares attributes or metrics of the present mode with the predefined modes to determine if the amount of activity required at that time can be efficiently serviced – col. 7, lines 25-36 and col. 5, line 61 through col. 6, line 11), **wherein the copy policy comprises a set of copy policy attributes that correspond to the copy function attributes of each copy function, wherein the copy function attributes comprise predefined values that indicate functionality characteristics of the corresponding copy function** (the attributes of the performance metrics of Yanaka are used to determine the predefined mode); **and**

a selection module configured to automatically select a copy function that satisfies the predefined copy policy based on the comparison of the copy function attributes to the corresponding attribute objectives of the copy policy (the write activity detector issues a command to change the remote copy mode to another predefined mode that is most appropriate for the transfer – col. 7, lines 25-36 and col. 5, line 61 through col. 6, line 11); **and**

a relationship module configured to establish a copy relationship between the selected copy function and the data copy request, the copy relationship configured to use the selected copy function to copy the data to a secondary storage device (once the write activity detector issues the command to change the copy mode, the new mode is set for the transfer – again, col. 7, lines 25-36 and col. 5, line 61 through col. 6, line 11).

Art Unit: 2185

In regard to claim 25, this claim recites a method and computer readable medium respectively which are similar in scope to claim 1, therefore this claim is rejected based on the same rationale as claim 1, as per the rejection *supra*.

As for claim 2, Yanaka teaches **a policy generation module configured to read a set of required attributes from the application and to establish the predefined copy policy based on the set of required attributes from the application** (the write activity detector bases its decision to change the mode based on attribute data from the host (i.e. number of commands, quantify of information, response time, access range, etc.) – col. 9, lines 8-36).

As for claim 4, Yanaka teaches **the identification module as being further configured to determine a set of copy functions compatible with the application, determine a set of copy functions compatible with a source storage device and a destination storage device, where the data of the data request is stored, and the secondary storage device, and to determine the available copy functions that are common to both the set of copy functions compatible with the application and the set of copy functions that are compatible with the source storage device and the secondary storage device** (all three modes are compatible with the application, source storage device, and destination storage device. The write activity detector determines the best mode for most efficient mirroring based on system requirements at the time – col. 7, lines 25-36 and col. 5, line 61 through col. 6, line 11).

Art Unit: 2185

As for claim 5, Yanaka teaches **the comparison module is further configured to compare a one or more copy function attributes of a copy function to corresponding predefined copy policy attributes, of the predefined copy policy, for each of a group of available copy functions and the selection module is further configured to select a copy function with a largest number of copy function attributes that satisfy the predefined copy policy attributes** (the write activity detector will select a copy function that is most efficient based on the attributes (i.e. number of commands, quantify of information, response time, access range, etc.) of the application – col. 9, lines 8-36).

As for claim 6, Yanaka teaches **the comparison module is further configured to calculate a difference between one or more predefined copy policy attributes, each configured as a numerical value, and corresponding predefined copy policy attributes, each configured as a numerical value, for each of a group of available copy functions and the selection module is further configured to select a copy function where differences between the numerical values of the copy function attributes and the numerical values of the predefined copy policy attributes is the smallest** (the mode is determined based on the outcome of a weighted sum to establish a mode most similar to the one required for maximizing mirroring efficiency – col. 9, lines 10-36).

As for claim 7, Yanaka teaches **the comparison module is further configured to compare one or more copy function attributes to corresponding predefined copy function attributes for each of the available copy functions to determine a score for each attribute of each copy function, to multiply each score by a priority factor to determine an adjusted score, to sum the adjusted scores for each copy function, and the selection module is**

Art Unit: 2185

further configured to select a copy function with a highest sum of adjusted scores (the mode is established by multiplying a correlation coefficient by the number of commands fitting in an access range, effectively prioritizing which mode is most efficient for the mirroring; if the upper limit is exceeded, the mode is changed appropriately – col. 9, lines 10-36).

As for claim 8, Yanaka teaches **the comparison module is further configured to calculate a difference one or more copy function attributes, each configured as a numerical value, and corresponding predefined copy policy attributes for each of the available copy functions, to multiply each difference by a priority factor to obtain an adjusted difference, to sum the adjusted differences for each copy function, and the selection module is further configured to select a copy function with a lowest sum of adjusted differences** (the mode is established by a weighted sum of values by multiplying a correlation coefficient by the number of commands fitting in an access range, effectively prioritizing which mode is most efficient for the mirroring; if the upper limit is exceeded, the mode is changed appropriately – col. 9, lines 10-36).

Claims 10, 12-16, 18, 20-24, 26 and 28-32 are similar in scope to claims 2 and 4-8;
therefore they are rejected based on the same rationale as claims 2 and 4-8.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 11, 19 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Yanaka*** (US Patent 6,467,034 B1) as applied to claims 1, 9, 17 and 25 respectively above, and in further view of ***Yamagami*** (US PG Publication 2002/0143999 A1).

As for claim 3, though Yanaka teaches **a policy generation module configured to determine the predefined copy policy based on a set of required attributes from an application** (as per the rejection of claim 2 above), he fails to specifically teach **allowing a user to determine the policy**.

Yamagami however teaches path selection method for storage based remote copy in which a user is capable of selecting a copy policy based on system attributes (paragraph 0006, all lines).

It would have been obvious to one of ordinary skill in the art at the time of the invention for Yanaka to further include Yamagami's path selection method into his own data mirroring method. By doing so, Yanaka could minimize the cost of data transfer in his system via user-selectable multiple network connections as taught by Yanaka in paragraphs 0004 through 0005, all lines.

Claims 11, 19 and 27 are similar in scope to claim 3; therefore they are rejected based on the same rationale as claim 3.

Claims 38 – 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Yanaka* (US 6,467,034) as applied to claim 1 above, and further in view of *IBM* (“Leveraging new storage technology for a competitive edge”) and *Applicant’s admitted prior art (AAPA)*.

In regard to claim 38, this claim recites a method and computer readable medium respectively which are similar in scope to claim 1, therefore this claim is rejected based on the same rationale as claim 1, as per the rejection *supra*.

Furthermore, Yanaka teaches knowing the amount of data received (col. 9, lines 8 - 36) but does not teach wherein a predefined copy policy attribute within the predefined copy policy comprises a recovery point objective (“RPO”), wherein an RPO comprises an amount of data lost over a period of time. Yanaka also teaches wherein a predefined copy policy attribute within the predefined copy policy comprises an application impact, wherein an application impact comprises a performance impact caused by a copy function to the application, the performance impact measured in a unit of time (col. 9, lines 10 – 36; the write detector checks the responded per unit time).

Yanaka does not teach **wherein a predefined copy policy attribute within the predefined copy policy comprises a recovery time objective (“RTO”), wherein an RTO comprises an amount of time to recover data to a usable condition**. Nor does Yanaka teach **wherein a predefined copy policy attribute within the predefined copy policy comprises a distance to a secondary site where the secondary storage device is stored**.

IBM teaches that in designing a storage system, a user needs to understand how critical the data is to the enterprise and its impact on the business (page 10, 1st bullet point). IBM further

Art Unit: 2185

teaches consideration as to how long data may not be available if down (page 10, 1st bullet point). IBM also teaches that a lifecycle policy should also be considered as to where data is stored (page 10, 4th bullet point). This would affect how often data is stored and how long it'd take to restore and where it's located.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Yanaka's predefined copy policy attribute by implementing attributes for: how much data can be lost between backups, how much time is taken to recover the data; and an indication as to where or how far away the backup data is stored. Taking all of these issues into consideration allows for the users to successfully meet their storage needs by creating an infrastructure that not only meets their current needs, but is flexible enough to meet future needs (page 12, "Conclusion").

Finally, Yanaka does not overtly teach **wherein a predefined copy policy attribute within the predefined copy policy comprises a consistency, wherein a consistency comprises a determination of dependency on other stored data**, but does teach that systems typically don't allow another request until the current request completes (col. 2, lines 31 - 48). In the Applicant's specification, it clearly states that data cannot be recovered in a typical business environment "without the correctness of the data upon which it depends" (page 21, lines 5 - 7), thus implying that successful data recovery would include understanding the dependencies within that data. It would make no sense for a business to back up or copy data that it cannot recover. In fact, it would defeat the purpose of copying. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Yanaka's

Art Unit: 2185

predefined copy policy attribute within the predefined copy policy by implementing a typical consistency attribute so that users can recover their data.

Claim 39 is similar in scope to claim 4; therefore it is rejected based on the same rationale as claim 4.

ACKNOWLEDGMENT OF ISSUES RAISED BY THE APPLICANT

Response to Amendment

3. Applicant's arguments filed on 3/1/2010 have been fully considered, however, they are not deemed persuasive.

4. As required by **M.P.E.P. § 707.07(f)**, a response to these arguments appears below.

ARGUMENTS CONCERNING PRIOR ART REJECTIONS

5. Claims must be given the broadest reasonable interpretation during examination and limitations appearing in the specification but not recited in the claim are not read into the claim (See M.P.E.P. 2111 [R-1]).

6. Claim 1

Applicant argues “Yanaka fails to teach or suggest identifying one or more available copy functions and particularly fails to do so in response to a data copy request... Yanaka is not concerned with selecting compatible copy functions for an application, but is merely directed toward switching between different known mirroring modes based on a command load of a storage system. There is no need to identify the different mirroring modes, because the same three are always available and are always known independent of storage device and

Art Unit: 2185

application... identify if the present mode is appropriate for the data transfer is not the same as and does not anticipated the element of claim 1... the alleged identification in Yanaka is not performed in response to a data copy request... but is done based on a range of an activity".

In response, these arguments have been fully considered but are not deemed persuasive.

Yanaka discloses "identify one or more available copy functions in response to a data copy request" as [**"data mirroring method and operation... a command issued from the host... A write operation... is performed... Separately from and in parallel with this operation, for the purpose of copy, data are sent by the remote controller... a copy of the data stored in the disk system... is made... according to a specified copy mode"** (col. 8, line 56-col. 9, line 8) wherein one of three copy modes is identified; the synchronous mode, semi-synchronous mode and adaptive copy mode (*interpreted to correspond to the claimed copy functions*) (col. 7, lines 43-67; col. 8, lines 1-55) "the write activity detector... recognized that the performance may be influenced and issues an instruction to change over the mode to a mode making it possible to display a better performance" (col. 9, lines 37-45). *Applicant should note that copy functions are functions used to copy data from disk system A101 to disk system B201; wherein any identification of copy functions is done in order to copy data from disk system A101 to disk system B201 and is thus response to data copy requests and in order to process data copy requests*].

Further, contrary to Applicant's assertion that "there is no need to identify the different mirroring mode, because the same three are always available and are always known"; in Yanaka one of three copy modes (or functions) is identified and selected in order to copy data from a

Art Unit: 2185

first system to a second system, wherein only one of three modes is used at a time and must be identified and distinguished from the other two modes.

Regarding the limitation "the identification module identifying each identified copy function by determining that the copy function is compatible with the secondary storage device and available to an application to copy data of the data copy request to the secondary storage device"; Applicant argues "identification of a copy function is not related to determining if a present mode is appropriate, but identifies copy functions available to an application and determines if the copy function is compatible with a secondary storage device."

In response, these arguments have been fully considered but are not deemed persuasive since Yanaka discloses "the identification module identifying each identified copy function by determining that the copy function is compatible with the secondary storage device and available to an application to copy data of the data copy request to the secondary storage device" as **[one of three copy modes is identified; the synchronous mode, semi-synchronous mode and adaptive copy mode (*interpreted to correspond to the claimed copy functions*) (col. 7, lines 43-67; col. 8, lines 1-55) wherein Applicant should note that the three copy functions disclosed by Yanaka must be compatible with the secondary storage (disk system B201) and be available in order to copy data from primary disk system A101 to disk system B201. Thus, controller A of disk system A101 identifies copy modes or functions by determining that the copy modes are compatible with the secondary storage device and available to the host and any applications running on the host (See fig. 1 and related text)]**.

Art Unit: 2185

Regarding Applicant's arguments that "identification of a copy function is not related to determining if a present mode is appropriate, but identifies copy functions available to an application and determines if the copy function is compatible with a secondary storage device"; Applicant should note that the system/method of Yanaka performs mirroring or copying of data from disk system A101 to disk system B201, and every time the system/method of Yanaka changes from one copy mode to another, it identifies a copy mode from three possible copy modes to use; wherein the copy mode must be compatible with the secondary storage device and available to host and applications running in host in order to be able to perform the data copying as taught by Yanaka.

With regard to the limitation "a comparison module configured to compare one or more copy function attributes of each available copy function to corresponding copy policy attributes of a predefined copy policy"; Applicant argues "...the Office Action seems to be asserting that the mirroring modes of Yanaka anticipate both the copy functions and copy policy... the copy policy of the application module... is not the same as the copy functions identified as compatible with a storage device.... Figure 11... the copy policy of the application is compared with available copy functions to determine a best fit... The present application is directed to associating a copy policy with a particular application and then comparing the copy policy attributes assigned to the data to the attributes of various available copy functions to determine which copy function most closely satisfies the requirements assigned to the data. This is fundamentally different idea than monitoring a number of commands waiting to be processed and adjusting the copy mode accordingly... Yanaka teaches... monitors activity... monitoring

Art Unit: 2185

activity is not the same as comparing attributes of a copy policy with attributes of a copy function that include predefined values to determine which copy function should be used for the data... Yanaka teaches using predefined queue trigger points to change from one predefined copy mode to another... does not compare attributes with attributes, but instead compares performance metrics to predefined limits to shift from one copy mode to another... Even if a predefined limit... is... assumed to be a predefined copy policy attribute, it is not compared to an attribute of a copy function comprising a predefined value, but instead is compared to performance metrics measured within a processor...".

In response, Applicant's arguments have been fully considered but they are not deemed persuasive.

First, it appears that Applicant is reading limitations which are not claimed into the pending claims since Applicant's pending claims do not contain any requirement or limitation dictating what the copy function and copy policy of Applicant's claims consist of or that they be different. Applicant's claim 1 does not define what the attributes of a copy policy and attributes of the copy function comprise. There is nothing in the Applicant's claims that limits attributes in such a fashion as to exclude performance metrics from the scope of the claim language. In this case, performance metrics as taught by Yanaka can be considered attributes of the copy function. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993) and (See M.P.E.P. 2111 [R-1]).

Yanaka discloses "a comparison module configured to compare one or more copy function attributes of each available copy function to corresponding copy policy attributes of a

Art Unit: 2185

predefined copy policy” as [the write activity detector compares the attributes or metrics of the present mode (*corresponding to the claimed copy policy attributes of a predefined copy policy*) with the predefined modes (*corresponding to the claimed copy function attributes*) to determine if the amount of activity required at that time can be efficiently serviced – col. 7, lines 25-36 and col. 5, line 61 through col. 6, line 11); wherein the performance metrics as taught by Yanaka comprise “attributes” as broadly claimed].

Regarding the limitation “a selection module configured to automatically select a copy function that satisfies the predefined copy policy based on the comparison of the copy function attributes to the corresponding attribute objectives of the copy policy”; Application argues “Yanaka fails to teach automatically selecting a copy function that satisfies a predefined copy policy based on a comparison of attributes... issuing a command to change a copy mode based on performance metric... does not anticipate comparing copy policy attributes with copy function attributes... a queue state of commands... is neither a copy policy attribute nor a function attribute... it is a system performance attribute.”

In response, these arguments have been fully considered but are not deemed persuasive.

It appears that Applicant is reading limitations which are not claimed into the pending claims since Applicant’s pending claims do not contain any requirement or limitation dictating what the copy function and copy policy of Applicant’s claims consist of or that they be different. Applicant’s claim 1 does not define what the attributes of a copy policy and attributes of the copy function comprise. There is nothing in the Applicant’s claims that limits attributes in such a fashion as to exclude performance metrics from the scope of the claim language. In this case,

Art Unit: 2185

performance metrics as taught by Yanaka can be considered attributes of the copy function.

Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993) and (See M.P.E.P. 2111 [R-1]).

Yanaka discloses “a selection module configured to automatically select a copy function that satisfies the predefined copy policy based on the comparison of the copy function attributes to the corresponding attribute objectives of the copy policy” as **[the write activity detector issues a command to change the remote copy mode to another predefined mode that is most appropriate for the transfer – col. 7, lines 25-36 and col. 5, line 61 through col. 6, line 11. Applicant should note that Yanaka clearly discloses “data mirroring method capable of obtaining the optimum performance of a system as a whole by automatically changing over prepared data mirroring method of three kinds being different in processing speed through monitoring the activity of the hosts” (col. 5, lines 55-60; Further refer to claims 1, 8, and 15 in Yanaka); wherein the change over of one mode to another is done automatically in response to comparisons of the attributes or metrics of the present mode (*corresponding to the claimed copy policy attributes of a predefined copy policy*) with the predefined modes (*corresponding to the claimed copy function attributes*) (col. 9, lines 9-36)]**.

Claim 2

With respect to the limitation “read a set of required attributes from the application and to establish the predefined copy policy based on the set of required attributes from the application”; Applicant argues “a teaching of the write activity detector basing its decision on monitoring a

Art Unit: 2185

number of commands received from a host etc. in no way teaches or suggests reading a set of required attributes from an application."

In response, these arguments have been fully considered but are not deemed persuasive.

First, Applicant should note that pending claim 2 contains no requirement or limitation dictating what the claimed required attributes from an application comprise. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993) and (See M.P.E.P. 2111 [R-1]). Therefore, any set of required attributes or metrics of an application may be interpreted to read as the claimed required attributes.

Yanaka discloses "read a set of required attributes from the application and to establish the predefined copy policy based on the set of required attributes from the application" as **[the write activity detector bases its decision to change the mode based on attribute data from the host (i.e. number of commands, quantify of information, response time, access range, etc.) – col. 9, lines 8-36].** Yanaka explains "a write command from the host... is received... the write activity detector... checks always the number of commands or the quantity of information received (*corresponding to required "attributes" as broadly claimed since the number of commands are required by the host application*)... and the queuing state of commands waiting for being processed" (col. 9, lines 9-27) "the write activity detector... recognized that the performance may be influenced and issues an instruction to change over the mode to a mode making it possible to display a better performance" (col. 9, lines 37-45). Further, Yanaka refers to "an access range where there are data required by a command" (col. 9, lines 37-45)].

Claims 38

Applicant argues "The Office Action asserts that each of the... elements... are taught in IBM or the AAPA. IBM teaches the general ideas of the importance of data storage and how long data may not be available if down, but makes no teaching or suggestion of using such a limitation in a copy policy as compared to copy function attributes for selecting a copy function... AAPA does mention the idea that data recovery requires an understanding of data dependency. However, these general ideas do not teach or suggest the specific limitations recited in Claim 38 wherein a predefined copy policy includes a recovery point objective attribute, a recovery time objective attribute, a distance to a secondary site attribute, and a consistency attribute, where the predefined copy policy is assigned to a particular data set and where it is compared to copy function attributes to select a best fit copy function."

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In view of the following discussion, Examiner would like to emphasize the following:

Sources of rationale supporting a rejection under 35 U.S.C. 103 may be in a reference, or reasoned from common knowledge in the art, scientific principles, art recognized equivalents, or legal precedent. The CCPA has held that "in considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences

Art Unit: 2185

which one skilled in the art would reasonably be expected to draw therefrom." In re Preda, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968); MPEP 2144.01.

In determining obviousness under 35 U.S.C. 103 in view of the Supreme Court decision in KSR International Co. v. Teleflex Inc., the Supreme Court stated that: "If a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill".

Still further, the Court states that "the focus when making a determination of obviousness should be on what a person of ordinary skill in the pertinent art would have known at the time of the invention...and this is regardless of whether the source of that knowledge and ability was documentary prior art, general knowledge in the art, or common sense".

In this case, it would have been obvious to one having ordinary skill in the art to modify the system/method of Yanaka to **[implement attributes for: how much data can be lost between backups, how much time is taken to recover the data; and an indication as to where or how far away the backup data is stored as taught by IMB, since taking all of these issues into consideration allows for the users to successfully meet their storage needs by creating an infrastructure that not only meets their current needs, but is flexible enough to meet future needs (page 12, "Conclusion")]**, and to further modify the combination of Yanaka and IBM to **[have predefined copy policy attribute within the predefined copy policy by implementing a typical consistency attribute so that users can recover their data since AAPA discloses data cannot be recovered in a typical business environment "without the correctness of the data**

Art Unit: 2185

upon which it depends” (page 21, lines 5 – 7), thus implying that successful data recovery would include understanding the dependencies within that data].

In light of the forgoing, Examiner would like to accentuate that the combination of Yanaka, IBM and AAPA is proper and discloses all the limitations as required by claim 38.

7. Regarding all other Claims not specifically traversed above and whose rejections were upheld, the Applicant contends that the listed claims are allowable by virtue of their dependence on other allowable claims. As this dependence is the sole rationale put forth for the allowability of said dependent claims, the Applicant is directed to the Examiner's remarks above.

Additionally, any other arguments the Applicant made that were not specifically addressed in this Office Action appeared to directly rely on an argument presented elsewhere in the Applicant's response that was traversed, rendered moot or found persuasive above.

8. All arguments by the applicant are believed to be covered in the body of the office action; thus, this action constitutes a complete response to the issues raised in the remarks dated 3/1/2010.

CLOSING COMMENTS

Conclusion

a. STATUS OF CLAIMS IN THE APPLICATION

9. The following is a summary of the treatment and status of all claims in the application as recommended by **M.P.E.P. 707.07(i)**:

a(1) CLAIMS REJECTED IN THE APPLICATION

Art Unit: 2185

10. Per the instant office action, claims *** have received an action on the merits and are subject to a non-final rejection.

a(3) CLAIMS NO LONGER UNDER CONSIDERATION

11. As of amendment dated 3/1/2010, claims 33-37 and 40-45 have been canceled.

b. DIRECTION OF FUTURE CORRESPONDENCES

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yaima Campos whose telephone number is (571) 272-1232. The examiner can normally be reached on Monday to Friday 8:30 AM to 5:00 PM.

13. If attempts to reach the above noted Examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Sanjiv Shah, can be reached at the following telephone number: Area Code (571) 272-4098.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/713,634
Art Unit: 2185

Page 27

May 17, 2010

/Yaima Campos/
Examiner, Art Unit 2185